

Chapter 4.6

AESTHETICS

4.6.1 Introduction

A brief overview of aesthetic concepts and terminology is provided below as a reference. The aesthetics environmental setting and impact analysis follows the introduction.

Concepts and Terminology

Definition of 'Aesthetics'

Aesthetics can be defined as the judgment of sentiment and taste based on perception (Silbey, 2001). Aesthetics (or visual resource) analysis is therefore a process to logically assess visible change related to project implementation, and viewer response to that change.

The assessment of visual resources typically involves the identification of the following four key aesthetic components: visual character, visual quality, visual sensitivity, and viewer response.

Visual Character

Both natural and artificial landscape features make up the character of a view. Character is influenced by geologic, hydrologic, botanical, wildlife, recreational, and urban features. Urban features include aspects of landscape settlement and development, such as roads, utilities, structures, earthworks, and the results of other human activities. The perception of visual character can vary significantly among viewers depending on their level of sensitivity and interest. Among sensitive viewers, perception can vary seasonally and even hourly as weather, light, shadow, and the elements that compose the viewshed change. Form, line, color, and texture are the basic components used to describe visual character and quality for most visual assessments (USFS, 1974; FHWA, 1983). The appearance of the viewshed is described in terms of the dominance of each of these components.

Visual Quality

Visual quality is evaluated using the well-established approach to visual analysis adopted by the Federal Highway Administration (FHWA) (Jones et al., 1975; FHWA, 1983), employing the concepts of vividness, intactness, and unity, as defined below:

- *Vividness* is the visual power or memorability of landscape components as they combine in striking or distinctive visual patterns.
- *Intactness* is the visual integrity of the natural and human-built landscape and its freedom from encroaching elements; this factor can be present in well-kept urban and rural landscapes, as well as in natural settings.

- *Unity* is the visual coherence and compositional harmony of the landscape considered as a whole; it frequently attests to the careful design of individual components in the artificial landscape.

Visual quality is evaluated based on the relative degree of vividness, intactness, and unity, as modified by its visual sensitivity. High-quality views are highly vivid, relatively intact, and exhibit a high degree of visual unity. Low-quality views lack vividness, are not visually intact, and possess a low degree of visual unity.

Visual Sensitivity and Viewer Response

The measure of the quality of a view must be tempered by the overall sensitivity of the viewer. Viewer sensitivity is based on the visibility of resources in the viewshed, the proximity of viewers to the visual resource, the elevation of viewers relative to the visual resource, the frequency and duration of viewing, the number of viewers, and the type and expectations of individuals and viewer groups.

The criteria for identifying importance of views are related in part to the position of the viewer relative to the resource. An area of the landscape that is visible from a particular location (e.g., an overlook) or series of points (e.g., a road or trail) is defined as a viewshed. To identify the importance of views of a resource, a viewshed may be broken into distance zones of foreground, middleground, and background. Generally, the closer a resource is to the viewer, the more dominant it is and the greater is its importance to the viewer. Although distance zones in viewsheds may vary between different geographic regions or types of terrain, a commonly used set of criteria identifies the foreground zone as 0.25–0.5 miles from the viewer, the middleground zone as extending from the foreground zone to 3–5 miles from the viewer, and the background zone as extending from the middleground zone to infinity (USFS, 1974).

Judgments of visual quality and viewer response must be made based in a regional frame of reference (USSCS, 1978). The same type of visual resource in different geographic areas could have a different degree of visual quality and sensitivity in each setting. For example, a small hill may be a significant visual element in a flat landscape but have very little significance in mountainous terrain.

Sensitivity is dependent on context and physical conditions of an area, and for recreationists sensitivity is often related to an individual's goals and outdoor experience expectations (Bernell et al., 2003). Many recreationists and residents expect to enjoy natural aesthetic conditions of outdoor wilderness areas and are sensitive to any development or activities which conflict with these expectations. For further discussion regarding potential conflicts between suction dredging and other recreational activities, please refer to Chapter 4.8 of this SEIR, *Recreation*.

Generally, visual sensitivity is higher for views seen by people who are driving for pleasure, people engaging in recreational activities such as hiking, rafting, or camping, and local homeowners and employees, than for those by people driving to and from work or other destination (USFS, 1974; USSCS, 1978; FHWA, 1983). Non-recreational travelers have generally fleeting views and tend to focus on traffic and not on surrounding scenery, and therefore are generally considered to have low visual sensitivity.

Residential and commercial viewers typically have extended viewing periods and are concerned about changes in the views from their homes or workplaces; therefore, they generally are considered to have moderate to high visual sensitivity. Viewers using recreation trails and areas, scenic highways, and scenic overlooks are usually assessed as having high visual sensitivity, due to their expectations for the aesthetic conditions in these types of areas.

4.6.2 Environmental Setting

The setting section describes the regional characteristics of riverine areas in the state, an overview of areas designated for their scenic qualities, and descriptions of viewer groups and viewer responses. The reader is also directed to the *Activity Description* in Chapter 3 for a description of characteristics of suction dredging, and related activities and encampments.

Regional Characteristics of California's Riverine Areas

For the purposes of this analysis, riverine areas of California have been divided into five regions based on climatic and topographic characteristics. Each of these regions discussed below contains a distinct aesthetic character based on its geography and associated vegetative communities. Representative photos of each regional riverine area are shown in Figure 4.6-1. More detailed descriptions of these regions are included in Chapter 4.1, *Hydrology and Geomorphology*.

Klamath/Trinity

The Klamath/Trinity region encompasses the northernmost inland mountain areas. This region is characterized as being the least accessible and known mountain regions in the state. In the western edge of this region, heavy precipitation, fog, and mild temperatures result in a dense forest composition similar to that of Alaska and western Canada; including cedar, fir, hemlock, and spruce tree species. The eastern portion of the region is known as the Cascade Range and though similar, is predominantly characterized as coniferous forest dominated by Ponderosa Pine. This eastern edge traps moist air flow from traveling eastward, thus resulting in abundant snowfall which is visible on high-mountain peaks nearly year-round. (Schoenherr, 1992)

Four major river systems drain this region, the Klamath, Smith, Trinity and the Pit rivers (the Klamath and Trinity rivers are shown in Figure 4.6-1, Photo a). The Klamath, Smith, and Trinity rivers, though dammed upstream, still flow freely in the lower reaches. The Pit River, which drains the Cascade area, supplies part of the State Water Project, draining into the Shasta Reservoir. (Schoenherr, 1992)

This region is considered to have some of the highest visual character and quality in the state due to the large tracts of open space and relatively low level of development compared to other areas of the state. The majority of land within this region is managed by federal and state agencies as protected resource areas. Thus, river courses and vegetation are relatively pristine compared to other areas of the state; this region is perhaps the most unspoiled and untouched region in the state, especially along the many rivers and streams throughout the region. Views of the landscape are dramatic with high sharp mountain peaks and deep v-cut valleys with steep slopes extending down to stream channels. Rivers

and streams meandering through narrow valleys are contrasting against the largely green steep landscape. Rivers channels widen and form braided gravel bars and side channels as they flow from higher to lower elevations.

Sierra Nevada

A single mountain range extending approximately 400 miles, the Sierra Nevada mountain range is one of the largest in the world. It is comprised of granitic rocks that contribute to its distinct appearance, recognizable in the works of Ansel Adams and John Muir. Photos (b) and (c) in Figure 4.6-1, depict views of the North Fork of the American River and Bear River, respectively. These two Sierra Nevada streams are popular suction dredging areas.

Climate patterns on the Sierra range result in abundant precipitation on the western slopes of the range, with the eastern slopes remaining considerably drier. On the western slopes, this heavy precipitation supports a dense coniferous forest where some of the tallest tree species are located, including sugar pine and giant sequoia (Schoenherr, 1992). In addition, large alpine meadows and numerous waterbodies including lakes, streams, and rivers are interspersed throughout the region. The eastern slopes of the Sierra transition to desert conditions.

This region is somewhat more populous than the Klamath/Trinity region, especially along the western foothills which border the Great Central Valley in the center of the state. Similar to the Klamath/Trinity region, the Sierra Nevada is a popular recreational destination for aesthetic enjoyment of the state's natural features, including glacial valleys, moraine lakes, and evergreen forests. Historic (1850-60's) gold mining activities in the Sierra, specifically hydraulic mining, have left visual scars on some rivers. Banks, particularly along upper Yuba River, were severely eroded by water cannons and now appear largely denuded of vegetation compared to the surrounding landscape. Today, the large majority of the region's resources are protected within federal and state parklands and scenic views to rivers and riverine areas are dominated by evergreen trees. Much like valleys in the Klamath/Trinity region, views of the landscape in the Sierras are defined by high mountain peaks and deep v-cut valleys. Slopes on the Sierras are somewhat gentler than in the northern region and stream flows are more heavily regulated due to dams constructed throughout the region. Perhaps the most visible non-natural features in the region are the many roads, bridges, and highways which traverse the region.

Coastal Areas

Coastal areas encompass the region of California where land meets the sea. These areas transition from sea-level elevations to terraces and mountainous landforms, sometimes very abruptly. There are three general areas along California's coastline where similar vegetation and geographies create distinct zones: the northern coast, the central coast, and the southern coast. In Figure 4.6-1, Photo (d) shows a view of the Russian River near California's coast.

The northern coast, for the purposes of this analysis, is generally defined as extending from the Oregon border southward to the Santa Barbara area. The climate and vegetation of this region is greatly influenced by heavy fog. Vegetation ranges from large tracts of heavily forested coast redwood in the north, to chaparral and oak woodlands in the south. In the



Photo a. Confluence of the Klamath River (right) and Trinity River (left) north of Hoopa, California.



Photo b. North Fork American River.



Photo c. Bear River near Auburn, California.



Photo d. View of the Russian River with Coastal Fog (Orton, 2009)



Photo e. Desert wash location in the Mojave Desert (Mite, 2005)



Photo f. Middlefork of the San Joaquin River near Devil's PostPile National Monument (Crossly, 2010)

interior northern coast area, the landscape exhibits a distinct pattern of large, well-spaced trees with grassy understory. (Schoenherr, 1992)

The unique east-west transitions of the central or transverse coast results in characteristic chaparral and coniferous forest communities (Schoenherr, 1992). Prominent features in this region include the Santa Monica, San Gabriel, San Bernardino, and Santa Ynez ranges. Of these, the Santa Ynez range parallels the coastline from Santa Barbara to Ventura, and in addition to chaparral vegetation, features coastal sage scrub, oak woodland, and grasslands at lower elevations.

The southern coast region is defined by the Peninsular Ranges that extend from the Transverse Ranges near Santa Barbara and continue south into Mexico. These mountainous ranges are separated by several valleys and plains. The west side of this region includes the Los Angeles Basin which is highly urbanized. Coastal sage scrub vegetation is the predominant natural vegetation type; however, urban development and human activity are the dominant visual features in this area (Schoenherr, 1992).

The majority of the state's coastal areas can be viewed by motorists along State Highways 1 and 101. From coastal highways, views of the Pacific Ocean dominate to the west and views to sharp hills and cliffs dominate to the east. Riverine areas are vegetated by shorter scrub vegetation in southern areas of the state and tall redwood trees in northern areas of the state.

Desert Regions

There are three main desert regions in California – the Modoc Plateau, the Basin and Range, and the Mojave – all of which all lie east of the mountain formations of the Cascade and Sierra Nevada ranges. These regions receive very little precipitation and support scrub vegetation dominated by creosote bush, saltbrush, and some Joshua tree woodlands (Hornbeck, 1983). These regions are characterized by relatively monotone colors with highly contrasting shadows and interspersed vegetation. Riverine environments in the desert are ephemeral and supported by a small amount of precipitation compared to the rest of the state. Stream channels in flat areas are less defined compared to higher elevations where channels are steeply cut into the landscape (see Figure 4.6-1, Photo e).

The higher elevation desert areas include plateaus and mountain peaks. Here vegetation forms a sparse forest, mostly of subalpine pines and juniper species, which allows for long-range visibility (Schoenherr, 1992).

Central Valley

Between the coastal area and the Sierra Nevada regions lies the Central Valley. The northern portion of this region is drained by the Sacramento River and is known as the Sacramento Valley, while the San Joaquin River drains the southern region known as the San Joaquin Valley. This region is widely recognized for its agricultural production, particularly in the San Joaquin Valley (Schoenherr, 1992).

Climate of the Valley is a product of its relatively low elevation and surrounding mountain ranges which intercept precipitation and prevent the drainage of cold air (Schoenherr, 1992). This dry weather pattern supports the nearly tree-less grasslands and marsh

vegetation that characterize the areas of the landscape that have not been converted to agricultural use (Hornbeck, 1983).

Views of this region are dominated by agricultural related structures, such as barns and grain silos, water canals, roadways, and intermittent urban centers. In nearly every location in the valley, views of either the Sierra Nevada to the east or the Coast Ranges to the west are visible (see Figure 4.6-1, Photo f).

Areas with Special Scenic Designations

Federal and state agencies actively designate and protect the scenic resources in California. Programs such as the National Landscape Conservation System, Wild and Scenic Rivers System, and Historic and Scenic Trails, are primarily aimed at preserving resources for the benefit of recreationalists. As such, these designated areas are described further in Chapter 4.8 *Recreation*.

Additionally, many local government authorities such as cities and counties designate scenic corridors or routes within their jurisdictional boundaries. These corridors are maintained according to adopted ordinances and general plan policies. Local land use plans and designated scenic corridors vary across the state.

National Wild and Scenic Rivers System

The National Wild and Scenic Rivers System was created by Congress in 1968 to preserve rivers with outstanding natural, cultural, and recreational values in a free-flowing condition for the enjoyment of present and future generations. Rivers may be designated by Congress and each is administered by either a federal or state agency. For federally administered rivers, such as the Klamath River, which is managed by the U.S. Forest Service, the designated boundaries extend an average one-quarter mile on either bank to protect river-related values. Information on designated rivers and river segments in California can be reviewed online at: <<http://www.rivers.gov>>.

Rivers are classified as wild, scenic, or recreational:

- *Wild river areas* — rivers or sections of rivers that are free of impoundments and generally inaccessible except by trail, with watersheds or shorelines essentially primitive and waters unpolluted.
- *Scenic river areas* — rivers or sections of rivers that are free of impoundments, with shorelines or watersheds still largely primitive and shorelines largely undeveloped, but accessible in places by roads.
- *Recreational river areas* — rivers or sections of rivers that are readily accessible by road or railroad, that may have some development along their shorelines, and that may have undergone some impoundment or diversion in the past.

Regardless of classification, river designation neither prohibits development nor gives the federal government control over private property. Recreation, agricultural practices, residential development, and other uses may continue. Protection of the river is primarily provided through voluntary stewardship by landowners and river users.

1 The Act prohibits federal support for actions such as the construction of dams or other
2 instream activities that would harm the river's free-flowing condition, water quality, or
3 outstanding resource values. However, designation does not affect existing water rights or
4 the existing jurisdiction of states and the federal government over waters as determined by
5 established principles of law.

6 California Wild and Scenic Rivers Act

7 The California Wild and Scenic Rivers Act (Public Resources Code Sec. 5093.50 et seq.) was
8 passed in 1972 to preserve California's designated rivers possessing extraordinary scenic,
9 recreation, fishery, or wildlife values. This act was patterned after the 1968 National Wild
10 and Scenic Rivers Act, and both share similar criteria and definitions in regard to the
11 purpose of protecting rivers, the process used to designate rivers, and in the prohibition of
12 new water impoundments on designated rivers. Unlike the national act, the California Wild
13 and Scenic Rivers Act provides protection only up to the first line of permanent vegetation
14 and does not require a management plan for designated rivers. The California Legislature is
15 responsible for classifying or reclassifying rivers by statute, though the Resources Secretary
16 may recommend classifications. State designated rivers may be added to the federal system
17 upon the request of the state Governor and the approval of the Secretary of the Interior.
18 Adding state rivers to the federal system under this act does not require approval of the
19 Legislature or Congress. State rivers added to the federal system are managed by the state.

20 The river segments initially protected in the state system when it was established in 1972
21 included the Smith, Klamath, Scott, Salmon, Trinity, Eel, Van Duzen, and American Rivers.
22 These were added to the federal system in 1981. Examples of state designated rivers that
23 are not also included in the federal system include the East Carson, West Walker, and South
24 Yuba rivers.

25 California Scenic Highway Program

26 The California Scenic Highway Program was created by the Legislature in 1963 to protect
27 the scenic qualities of California highways and adjacent corridors. To designate a scenic
28 highway, a local government authority such as a city or county must delineate a scenic
29 corridor and adopt ordinances, zones, or planning policies to protect the quality of the
30 corridor. Once designated, the local city or county agency can apply for grant funding to
31 maintain and enhance the scenic corridor. The Scenic Highway Program is administered by
32 the California Department of Transportation (Caltrans). However, Caltrans is not directly
33 responsible for enforcing the ordinances or planning policies established for the scenic
34 corridor by a local government agency.

35 ***Viewer Groups and Viewer Responses***

36 Different types of viewers have varying sensitivity to visual quality and changes in visual
37 quality. Sensitivity is based on their familiarity with the view, sense of ownership of that
38 view, and personal opinions regarding the activity being viewed (which determines how
39 much attention is paid to the view). Viewers in the actual viewshed of the Program activities
40 would include primarily recreational viewers, residential viewers, commercial viewers, and
41 occasionally motorists.

It is important to note that this discussion addresses average viewer sensitivity. Some viewers are more or less sensitive than their activity or ownership would indicate. Individuals' reactions to views vary greatly, depending on a number of factors – including how much they know or care about the view, their personal tastes, and their opinions about the activity they are viewing.

Recreationists

Recreational use in the Program Area includes a variety of activities within both public and private recreation areas. To effectively assess the potential exposure to Program activities, recreational activities can be sub-divided into several broad categories based on duration and type of activities, as outlined below. There is some overlap between these groups; however, they represent unique viewer perspectives specific to their category.

Typically, viewer sensitivity is moderately high among recreationists because they tend to value the natural environment highly, appreciate the visual experience, and be sensitive to changes in views.

Duration of Activities

Depending on the individual's schedule and/or recreational goals, visits to recreation areas can either be short-term or extended. In this context, short-term outings are considered to be those which last from a few hours up to a full day, but do not include overnight stays. Typical activities engaged in this period of time may include picnicking, hiking, bird-watching, biking, fishing, and rafting.

Extended recreation stays include camping or other overnight lodging in addition to any outdoor activity participation. Stays may be as short as a single night, or as long as a few weeks or months.

Though similar, viewer sensitivity may be slightly higher among longer-term recreationists because they are more likely to base their location on existing views and notice changes that might occur during their stays.

Activity Type and Setting

There are a large number of opportunities for recreationists of all kinds within and surrounding the Program Area. Recreational viewers often come to these areas for their aesthetic qualities. Depending on the activity the viewer is participating in, their sensitivity may be slightly more or less acute.

Recreationists participate in activities that can be either described as land-based or water-based. Land-based activities are those which are conducted primarily on land, for example hiking, hunting, and biking. Water-based endeavors, on the other hand, require the use of or proximity to waterbodies. Such activities include swimming, wading, boating, fishing, kayaking, and rafting, to name a few. Generally, viewer groups are most sensitive to changes or disparities in the visual quality within the setting of their particular activity. While viewers may still be aware of visual changes occurring in alternate settings, sensitivity tends to only be average because it is not within the primary focus of their activities.

In addition, recreational viewers engaged in more active, and in particular motorized, recreation, such as playing sports or operating motorboats or all-terrain vehicles (ATVs), are expected to have only an average sensitivity to visual quality and visual changes. Although they are aware of their surroundings, they are usually focused on the recreational activity itself and/or may be quickly transitioning through different areas. People engaged in more passive recreation, such as picnicking, photography, nature hikes, bird watching, or rafting may be more aware of their surroundings and more sensitive to the visual quality. The visual quality is often an important element in their recreation. Some of these viewers would be very sensitive to visual changes if they regularly return to the same place for their recreation. Others, such as first-time or occasional viewers, who would not be as familiar with the views, would not be as apt to notice changes.

Residents

Residents are individuals whose homes are in proximity to waterways in the Program Area that may be subject to Program activities. Viewer sensitivity is particularly high amongst residents because they are likely to value their local visual resources highly, appreciate the visual experience, and be more sensitive to changes in views. For many homeowners and residents in these regions, it is the undeveloped and natural visual qualities which brought them to settle in these areas.

The sensitivity of this viewer group can be attributable to their familiarity with the view, their investment in the area (if they are homeowners or long-time residents), and their sense of ownership of the view. The view from their residences and yards represents a visual extension of their property; any noticeable changes in this view, temporary or long-term, can result in strong positive or negative reactions.

Motorists

Motorists use roadways at varying speeds; normal highway and roadway speeds differ based on the traveler's familiarity with the route and roadway conditions (e.g., presence/absence of rain). Motorists who are travelling to simply get from one place to another, for business or pleasure, generally possess low to average visual sensitivity to their surroundings. The passing landscape is not of utmost relevance to these viewers, and their attention typically is not focused on the passing views but on the roadway, roadway signs, and surrounding traffic. Motorists who travel for sight-seeing purposes generally possess a higher visual sensitivity to their surroundings because they are likely to respond to the natural environment with higher regard and as a holistic visual experience.

Viewer sensitivity is moderately low among most roadway travelers within the Program Area. Views of Program activities from roadways are limited, being generally obscured by vegetation or topography. Furthermore, at standard roadway speeds, any views would be of such short duration that roadway users would only be fleetingly aware of these activities.

Commercial Viewers

Commercial viewers are individuals whose place of employment is in proximity to areas where Program activities would take place. This includes recreational facility employees, such as park operators, rafting guides, restaurant and/or shopkeepers in the Program Area, or those who may come into contact with such facilities as part of their work activities (e.g.,

delivery persons). Viewer sensitivity is moderate among workers because they generally are not highly focused on the visual resources surrounding their workplace, and will be less sensitive to changes in views, especially those that are temporary.

4.6.3 Impact Analysis

The methodology described below accounts for activities conducted in accordance with the proposed regulations contained in Chapter 2. Additional or more extensive impacts related to aesthetics may result for those suction dredge activities requiring notification under Fish and Game Code section 1602. Notification is required for the following activities:

- Use of gas or electric powered winches for the movement of instream boulders or wood to facilitate suction dredge activities;
- Temporary or permanent flow diversions, impoundments, or dams constructed for the purposes of facilitating suction dredge activities;
- Suction dredging within lakes; and
- Use of a dredge with an intake nozzle greater than 4 inches in diameter.

A general description of how such activities requiring Fish and Game Code section 1602 notification would deviate from the impact findings are described at the end of the impact section below.

Findings of 1994 Environmental Impact Report

In the 1994 EIR, both the suction dredging activity itself and associated work and camp sites were found to potentially conflict with natural settings for outdoor activity. The physical presence of the dredging equipment in the waterways, combined with the associated noise and air pollution, were found to generally conflict with other recreational users' aesthetic enjoyment of the area. Similarly, the large campsites and numerous vehicles associated with suction dredging activities were cited as having a potentially adverse effect on visual quality and competing with other visitors for space. However, these visual effects were considered to be of personal perception and were outside the jurisdiction of CDFG to regulate. In addition, the 1994 EIR notes that some National Forests have placed limitations on the number of camps and vehicles along popular suction dredging areas to reduce impacts to natural resources and conflicts between recreational users.

Methodology

The methodology used to assess visual resources impact from the Program includes the following:

- 1) Objectively identify the visual features (visual resources) within the Program Area.
- 2) Assess the character and quality of those resources relative to overall regional visual character.
- 3) Identify the importance to people, or *sensitivity*, of views of visual resources in the viewshed.

By establishing the baseline (existing) conditions, the Proposed Program or other change to the viewshed can be objectively evaluated for its degree of impact. The degree of impact depends both on the magnitude of change in the visual resource (i.e., visual character and quality) and on viewers' responses to and concern for those changes. This general process is similar for all established federal procedures of visual assessment (Smardon et al., 1986) and represents a suitable methodology of visual assessment for other projects and areas. Implementation of the Program was evaluated based on the potential to impact the following viewer groups: recreationalists, residents, commercial viewers, and motorists.

Criteria for Determining Significance

For the purposes of this analysis, the Proposed Program would result in a significant impact if it would:

- Have a substantial adverse effect on a scenic vista;
- Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway; or
- Substantially degrade the existing visual character or quality of the site and its surroundings.

Impacts related to light and glare were eliminated from further consideration in the Initial Study and are not discussed further here.

4.6.4 Environmental Impacts

Impact AES-1: Viewer Response to Suction Dredging Activities at the Suction Dredge Site (Less than Significant)

The representative photos in the Figure 4.6-2 illustrate typical suction dredge sites. In Figure 4.6-2, Photos (a) and (b) depict views of suction dredge camps and staging areas for equipment. The vivid colors of the dredge floats, hoses, and storage containers stand out from the natural green vegetation and rock materials surrounding the site. Staging areas such as these may be viewed by motorists on roadways, residents on adjacent properties, or recreationalists using public campsites and picnic areas. Staging areas are less screened from public view because larger clearings are required to load and unload equipment.

Photos (c) and (d) in Figure 4.6-2 depict assembled suction dredges anchored in the stream channel and ready for use. Views to the site and the surrounding setting would be altered by the colorful dredges and anchor ropes crossing the channel. This alteration in visual quality is especially evident in Photo (d) where the two dredges interrupt views of the stream channel. When in use, a viewer may or may not see the dredge operator because he/she is frequently underwater, as shown in Figure 4.6-2 Photo (e) as viewed looking down into the channel. When viewed from standing along the channel bank (like the angle shown in Figure 4.6-2 Photo (d)), the viewer would see water flowing from the back end of the floating dredge rig and perhaps a second operator standing at the rig to monitor the pumps and filtering mechanisms.

A wide range of viewer groups may be in contact with the activity, varying from very sensitive viewers (home or landowners / individuals opposed to suction dredging) to less

sensitive viewers (other miners or motorized recreational proponents). However, the majority of views of the suction dredging activity within the stream channel are generally screened from view by riparian vegetation growing within the streambank corridor. Viewer response to the suction dredge and its operation will be variable, depending upon the viewer group in general, and perceptions of individuals within each viewer group.

Overall, the visual effects from the suction dredge for most viewers are short-term and limited (the average duration of suction dredging activities for California residents extend approximately 30 days per year with active dredging occurring an average of 5.24 hours per day; for non-California residents, the average duration of suction dredging activities extend for 33.4 days per year with an average active dredging duration of 5.43 hours per day [Suction Dredger Survey results, Appendix F]). The dredging activity itself is screened from view in many cases. Viewer response is anticipated to be a mix of positive and negative reactions. There are likely to be substantial adverse effects in particular locations with higher numbers of sensitive viewers and more intense dredging activity. However, when considering the relatively small number of dredgers dispersed throughout the state (a maximum of 4,000 permitted dredgers per year under the proposed regulations), and the relatively short percentage of the year that dredging activities would be occurring, adverse visual effects are not considered substantial in the statewide context of the Proposed Program. For these reasons, this impact is considered to be less than significant.

Impact AES-2: Temporary Degradation of Visual Character from Turbidity Plumes Generated by Suction Dredging (Less than Significant)

Turbidity in a stream is a naturally occurring phenomenon that generally occurs during precipitation events in winter months, when high stream flows suspend fine streambed sediments into the water column, causing it to become cloudy and alter the color of the water (usually resulting in brown or grey tinting). Suction dredging in stream channels can generate a plume of similarly cloudy or “turbid” water immediately surrounding and downstream from dredging activities while the dredging is underway. An active suction dredge with an operator controlling the suction nozzle is shown in Figure 4.6-2, Photos (e) through (j). As seen in the photos, turbid water originates from the area where the dredge operator disturbs the streambed (see clouded area extending from left to right in Figure 4.6-2 Photo (e)), and also from tail end of the floating dredge header box (distinct clouded area in Figure 4.6-2, Photos (f), (g), (h), (i), and (j)). In relatively clear streams, a turbid plume of suspended sediments can entirely block views to the bottom of the streambed. This effect is evident in photos (e), (f), (g), and (h) of Figure 4.6-2.

The extent to which dredging generates visible turbidity is related to the composition of streambed substrate (a higher proportion of fine-grained material generally leads to greater turbidity), background turbidity levels in a given water body, the size and number of dredges operating simultaneously, and the duration of the dredging activity. While variable, turbidity plumes generated by suction dredges are generally short-term, persisting during the dredge activity itself and extending for varying distances downstream (between 100 feet to up to one mile downstream) (see Chapter 4.2, *Water Quality and Toxicology*.) The visual intensity of the effect is also related to the scale of the turbidity plume in relationship to the size of the water body (e.g., whether the plume extends across the entire water body or over a small portion of the channel).



Photo a. Suction dredge wash camp. South Fork Yuba River.

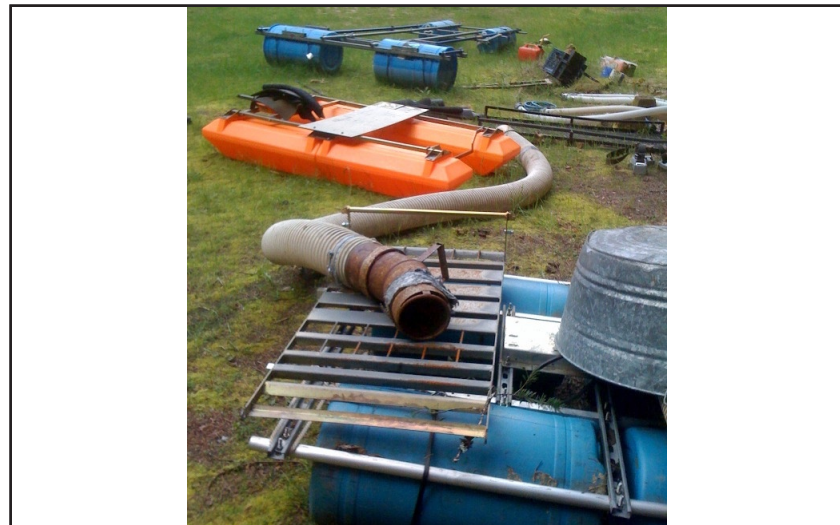


Photo b. Suction dredge staging area and equipment. Middle Fork Yuba River.



Photo c. Suction dredge anchored to stream bank and ready for use.



Photo d. Two suction dredge rigs tied together and secured on a rope spanning the river channel.



Photo e. Suction dredge in operation with diver underwater.



Photo f. Turbidity plume emitting from end of an active dredge, visible on right.



Photo g. Turbidity plume emitting from end of an active dredge, visible on right.

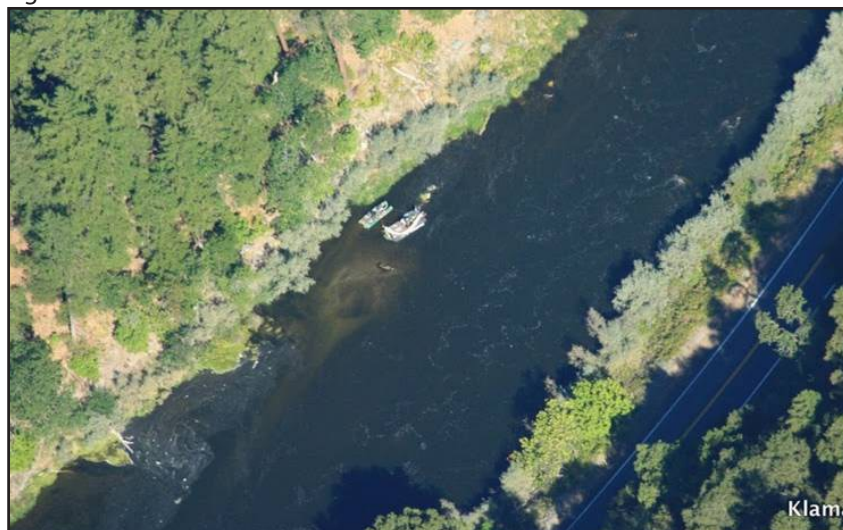


Photo h. Aerial view of an active dredge and resulting turbidity plume, visible on left.



Photo i. An active dredge.



Photo j. Additional (close up) view of discharge from the dredge in Photo (i).

Though turbidity in stream channels occurs naturally, most suction dredge activities occur during the dry season when stream flows are low and would not naturally cause suspension of stream sediments. In many locations where suction dredging occurs, particularly in high elevation mountain streams, waters are relatively clear during the summer. The large majority of recreational activities also occur during the summer months. Thus, sensitive viewers in the vicinity of suction dredging activities in the summer would be likely to observe distinct changes in water color and clarity as a result of suction dredging activities. However, as stated above, the turbidity plume extends downstream for variable distances and dissipates shortly after dredging activities have ceased. In comparison to the viewshed of the dredging site, the viewer in many cases will likely be minimally affected by color and clarity changes over a small portion of the stream channel.

While there are likely to be substantial adverse effects in particular locations where suction dredging is resulting in more extensive turbidity plumes, the overall impact on most viewers would be short-term and limited. Additionally, the proposed regulations include provisions that will avoid or minimize the potential for generation of turbidity plumes, such as limits on dredge size and prohibitions on dredging in gravel bars or areas with silt and clays. For these reasons, the potential aesthetic impacts are not anticipated to be substantial in the statewide context of the Proposed Program. This impact is considered less than significant.

Impact AES-3: Alteration of Visual Character or Quality, or Scenic Resources, Following Completion of Suction Dredging Activities (Less than Significant)

Scenic resources in the study area may include natural features such as water bodies, vegetation, rock outcrops, and the overall landscape within a viewer's viewshed. Local, state, and federal agencies identify scenic resources and corridors as valuable to residents and recreationalists and enforce policies and regulations to protect these resources. Examples include river reaches protected under the National Wild and Scenic Rivers System and scenic highways designated by the California Scenic Highway Program.

Suction dredging activities as proposed under the Program would alter the physical morphology of the environment within a stream channel, including generation of dredge holes and tailings piles, and potentially movement of large rocks and boulders which serve as visual features. The proposed regulations (Section 228[k]) prohibit alteration to riparian or in-channel vegetation or to the overall channel form or functioning. This section of the proposed regulations also requires that suction dredgers restore the dredge site when ceasing dredge activities (e.g., leveling of tailing piles).

Unauthorized activities have been reported to occur, including dredging into banks, removal of large woody debris, and damage to riparian vegetation from cables used to anchor dredges, which may have long-term visual effects. Additionally, ropes and cables left attached to trees and rocks on the banks, abandoned mining equipment, and trash such as discarded vacuum hoses may be left in the area after dredging activities have ceased. However, visual effects of unauthorized activities are not considered to be substantial overall due to the relatively small number of dredgers believed to engage in such activities.

The extent to which changes resulting from suction dredging and related activities are visible and have adverse effects would be variable, and related to the sensitivity of the

viewer group, the duration of exposure, etc. In many cases the duration of effect would be temporary and limited to a particular dredging season, as any residual evidence of dredging in the streambed itself is generally erased by winter storms (see Chapter 4.1, *Hydrology and Geomorphology*). Further, the average recreationalist or motorist (the majority of viewers within designated scenic resource areas) would not notice geomorphic changes remaining in the channel after dredging activities have ceased because they likely are viewing the site for the first time and have no previous reference to compare the pre- and post-dredging conditions of the site. A relatively small number of residential and commercial viewers who are very familiar with the viewshed and suction dredging sites are more likely to recognize geomorphic changes to the area. However, considering that dredging activities will be limited to a group of approximately 4,000 permittees who generally dredge a relatively small portion of the state in areas identified as a scenic resource, the overall viewer response would not be considered substantially adverse.

Visible changes resulting from suction dredging activities may occur in areas considered to be scenic resources, such as a designated Wild and Scenic River reach. However, when conducted according to the requirements of the Program, alterations to the site would not significantly or permanently alter the visual character or quality of the site in comparison with the larger viewshed. Thus, there would be a less than significant impact on scenic resources.

Impact AES-4: Alteration of Visual Character or Quality from Upland Activities Related to Suction Dredging (Less than Significant)

Suction dredging frequently is associated with upland activities such as camping and staging/access. As stated in Chapter 3, *Activity Description*, suction dredge encampments are not substantially different than encampments of other park or waterway users. Many suction dredgers camp in public campgrounds while others camp on private property or on property owned by mining clubs. Suction dredge-related campsites can range from 2 people to larger groups of 10 or more. Campsites in general can include tents, tarps, RV campers, portable toilets and showers, food containers, barbeques, and chairs and tables. Differing from a typical campsite, suction dredge campsites typically include a staging area for equipment (see Figure 4.6-2, Photos (a) and (b)) and large fuel containers and sometimes fuel-powered generators used to operate suction dredging equipment.

There are no known reports of adverse visual effects from staging and access. There are anecdotal reports of adverse aesthetic conditions caused by suction dredge encampments (housekeeping, trash, human waste, etc.) (Sierra Fund, 2009). However, there is no evidence that these conditions are present in a substantial proportion of dredge encampments. There is also no evidence that the general aesthetic character of suction dredge encampments differs from that of campsites in general (considering all types of campers).

As such, there is no information to suggest that suction dredge encampments would result in substantially different aesthetic conditions than those arising from camping in general, or that adverse aesthetic conditions are likely to be present in a substantial number of suction dredge encampments. As described in Chapter 2, CDFG will distribute an informational packet to each suction dredge permit holder to provide "Best Management Practices" advice. This information packet will include guidance on proper site maintenance,

1 equipment storage, and conduct as it relates to suction dredging activities. Finally,
2 management of campsites is overseen by the landowner/manager (public or private), which
3 may implement restrictions limiting aesthetic impacts. For these reasons, this impact is less
4 than significant.

5 ***Activities Requiring Fish and Game Code Section 1602 Notification***

6 Activities requiring notification under Fish and Game Code section 1602 are likely to result
7 in greater visual disturbances associated with the use of larger nozzle sizes, power winching
8 and water diversion techniques. Such methods could cause adverse effects related to
9 turbidity plumes and displacement of natural features (i.e. boulders), which are likely to
10 exceed the impacts that have been described in the discussion above. Furthermore,
11 dredging in lakes could increase visual intrusions on, or alterations to, areas which would
12 not otherwise be subject to the activity and increase negative viewer responses. Such issues,
13 to the extent to which they could be significant, would need to be evaluated in a CEQA
14 analysis.

15 In terms of upland effects, activities requiring notification Fish and Game Code section 1602
16 are likely to remain similar as those described above in Impact AES-3. Activities requiring
17 notification are not anticipated to result in substantially different patterns of equipment
18 storage and camping. However, such issues would be evaluated in a CEQA analysis to
19 ensure that effects remain below the threshold of significance.